



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/686,780	10/17/2003	Akinori Ohkubo	041514-5311	7707

55694 7590 07/05/2006

DRINKER BIDDLE & REATH (DC)  
1500 K STREET, N.W.  
SUITE 1100  
WASHINGTON, DC 20005-1209

EXAMINER

PATEL, GAUTAM

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/686,780	<b>Applicant(s)</b> OHKUBO ET AL.	
	<b>Examiner</b> Gautam R. Patel	<b>Art Unit</b> 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)                        |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>See Continuation Sheet</u> .                      |

Continuation of Attachment(s) 6). Other: Claim 13 is canceled with examiner's amendment.

A handwritten signature in black ink, appearing to be 'WJL' or similar, located in the center-right of the page.

### **DETAILED ACTION**

1. Claims 1-12 are pending for the examination. Claim 13 was canceled by examiners amendment.

### **Priority**

2. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119(a)-(d), which papers have been placed of record in the file.

### **NOTES/REMARKS**

3. Mr. Paul Fournier gave permission, during interview, to cancel claim 13 after consulting with the Applicants.

### **Specification**

4. The disclosure is objected for following reasons.  
The title of the invention is neither precise nor descriptive. A new title is required which should include, using twenty words or fewer, claimed features that differentiate the invention from the Prior Art. It is recommended that the title should reflect the gist of or the improvement of the present invention.  
Correction is required.

### **Claim Rejections - 35 U.S.C. § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4 and 12 are rejected under 35 U.S.C. § 102(e) as being anticipated by Yanagisawa et al., US. patent 6,865,144 (hereafter Yanagisawa).

As to claim 1, Yanagisawa discloses the invention as claimed, a device for detecting a tilt angle [see Figs. 1, 6 and 14] including a photodetector, a first and second push-pull signal generator and a tilt signal generator, comprising:

a photodetector [fig. 6, unit 12] provided at the light receiving portion, which has a light receiving surface divided into at least four segments along a track tangent direction of the optical recording medium and a direction that is perpendicular thereto, and which outputs light reception signals corresponding to an intensity of a laser beam received at the four segments of light receiving surface [col. 3, line 61 to col. 4, line 18; & col. 5, lines 13-50];

a first push-pull signal generator [fig. 6, unit 31-32] which generates, as a first push-pull signal, a difference between the light reception signals of said photodetector corresponding to two light receiving surfaces of one side of the four light receiving surfaces, which are divided in the track tangent direction;

a second push-pull signal generator [fig. 6, units 31-32] which generates, as a second push-pull signal, a difference between the light reception signals of said photodetector corresponding to two light receiving surfaces of the other side of the four light receiving surfaces, which are divided in the track tangent direction; and

a tilt signal generator [fig. 6 & 14 unit 11] which generates a tilt signal that indicates a tilt angle defined by a normal on the recording surface of said optical recording medium at a position of irradiation of the laser beam and the optical axis of the laser beam in accordance to a difference between an amplitude of the first push-pull signal and an amplitude of the second push-pull signal [col. 5, lines 13-50; col. 7, lines 15-56, & col. 9, lines 50-58].

6. The aforementioned claim 2, recites the following elements, inter alia, disclosed in Yanagisawa:

said tilt signal generator includes: a first PP value detection circuit for detecting a P-P (peak-to-peak) value of the first push-pull signal; a second PP value detection circuit for detecting a P-P value of the second push-pull signal; and a subtracter for subtracting the PP value detected by the second PP value detection circuit from the PP value detected by said first PP value detection circuit to generate the tilt signal [col. 7, lines 15-56].

Art Unit: 2627

7. The aforementioned claim 4, recites the following elements, inter alia, disclosed in Yanagisawa:

said tilt signal generator has an automatic gain control circuit [fig. 14, units 41 & 42]; and wherein said automatic gain control circuit is arranged at one of an input line of each of said first PP value detection circuit and said second PP value detection circuit, each connection line between said first PP value detection circuit and said subtracter and between said second PP value detection circuit and said subtracter, and an output line of said subtracter [col. 7, lines 15-56].

8. As to claim 12, it is a method claim corresponding to apparatus of claim 1 and is therefore rejected for the similar reasons set forth in the rejection of claim 1, supra.

### **Claim Rejections - 35 U.S.C. § 103**

9. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Yanagisawa as applied to claims 1-2 above in view of Shimoda et al., US. patent 6,894,955 (hereafter Shimoda).

As to claim 3, Yanagisawa discloses all of the above elements, including a tilt detection and push-pull signals. Yanagisawa does not specifically disclose that tilt generator has an averaging circuit to the extent claimed.

However, averaging circuits well known in the art, Also more importantly Shimoda clearly discloses:

an averaging circuit for averaging a level of at least one of the push-pull signal and the tilt signal [col. 13, lines 46-65].

Art Unit: 2627

Both Yanagisawa and Shimoda are interested in improving the tilt mechanism in an optical disk device. Both Yanagisawa and Shimoda show tilt mechanism with sensors and related hardware including tilt motors and tilt sensors.

One of ordinary skill in the art at the time of invention would have realized that it would be advantageous to control the position of the pickup as accurately as possible.

Therefore, it would have been obvious to have used an averaging circuit in the system of Yanagisawa as taught by Shimoda because one would be motivated to place a pickup as accurately as possible in the system of Yanagisawa and provide better signal controls and improve quality of the signal and provide robust device [col. 13, lines 57-65; Shimoda].

#### **Allowable Subject Matter**

10. Claims 5-11 are objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

NOTE: Claims 5-11 are allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a tilt angle detection device which includes a pattern identifying device “ and a switching element responsive to tilt signal or an arithmetic device for calculating a final tilt signal in response to plurality of tilt signals based on patterns on plurality of areas”.

It is noted that the closest prior art, Yanagisawa et al. (US 6865144) shows a similar tilt detection apparatus. However Yanagisawa fails to disclose a pattern identifying device and a switching element and also a an arithmetic device for calculation.

#### **Other prior art cited**

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a) Horino et al. (US. Patent 6418105)
- b) Sano et al. (US. patent )

Art Unit: 2627

- c) Tajima (US. patent 4589103)
- d) Jeong (US. patent 6,947,360).

**Contact information**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gautam R. Patel whose telephone number is 571-272-7625. The examiner can normally be reached on Monday through Thursday from 7:30 to 6.

The appropriate fax number for the organization (Group 2650) where this application or proceeding is assigned is 571-273-8300.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Dwayne Bost, who can be reached on (571) 272-7023.

Any inquiry of a general nature or relating to the status of this application should be directed to the Electronic Business Center whose telephone number is 866-217-9197 or the USPTO contact Center telephone number is (800) PTO-9199.



Gautam R. Patel  
Primary Examiner  
Group Art Unit 2627

June 27, 2006